

Claims

- 1) A concave arrangement for a threshing machine, the arrangement comprising a first stage having a concave associated with a rotary member, said concave having a hinged portion that is positioned in an exit region of  
5 said concave and is pivotally moveable between a first position and a second position so as to vary in use the distance between said hinged portion and said rotary member, said concave arrangement further comprising a second stage downstream of and spaced apart from said first stage and adapted to receive material processed in use in said first stage  
10 and said arrangement further including a bridging means for bridging a gap between said first and second stages, said bridging means being pivotally moveable jointly with said hinged portion such that said bridging means substantially closes said gap in and between each of at least said first and second positions of said hinged portion.
- 15 2) An arrangement according to claim 1, wherein said hinged portion and said bridging means are both integral with said concave.
- 3) An arrangement according to claim 1, wherein movement of said bridging means is substantially constrained to rotation about a pivot, such as a torsion rod.
- 20 4) An arrangement according to claim 1, wherein said concave and said hinged portion thereof are moveable as an assembly towards or away from said rotary member, substantially regardless of the pivotal position of said hinged portion.
- 25 5) An arrangement according to claim 1, wherein said hinged portion and said bridging means are connected together and jointly moveable by means of an over-centre mechanism.

- 6) An arrangement according to claim 5, wherein movement of said over-centre mechanism is controlled by means of a torsion rod extending substantially across the width of said second portion.
- 7) An arrangement according to claim 6, wherein said bridging means  
5 comprises a flap member, preferably perforated, that extends along said torsion rod and is fixed thereto.
- 8) An arrangement according to claim 6, wherein said flap member comprises one or more abutment portions that are adapted to locate or abut against said hinged portion in at least one of said first and second positions and  
10 preferably act as stop members in said position or positions.
- 9) An arrangement according to claim 6, wherein operation of said torsion rod is constricted by a mounting associated with a frame of said threshing machine, whereby said torsion rod is adapted for movement along predefined guide paths such that said torsion rod is adapted to follow  
15 movement of said concave towards or away from said rotary member.
- 10) An arrangement according to claim 6, wherein said torsion rod is controlled by means of a control lever, in the case of manual actuation said control lever preferably being mounted in a user accessible position or operable by means of remote control.
- 20 11) An arrangement according to claim 6, wherein said torsion rod is provided with a blocking means adapted for holding said torsion rod in a substantially fixed position.
- 12) An arrangement according to claim 11, wherein said blocking means  
25 comprises a resiliently loaded pin adapted to locate into an associated recess when said torsion rod is in a predetermined position.

- 13)An arrangement according to claim 1, wherein said concave arrangement further includes a third stage and is adapted for threshing and separation of crops.
- 14)An arrangement according to claim 1, wherein said first stage comprises a  
5       thresher apparatus and said second stage comprises a beater apparatus.
- 15) An arrangement according to claim 14, further comprising a rotary separator apparatus.
- 16)An arrangement according to claim 14, wherein movement of said hinged  
10       portion is arranged in use to vary a break-over angle between two stages of crop processing, so as for example to control stalk breakage of crop passing between said stages.
- 17)A concave arrangement for a combine harvester, the arrangement comprising a first stage having a concave associated with a rotary member, said concave having a hinged portion that is positioned in an exit region of  
15       said concave and is pivotally moveable between a first position and a second position so as to vary in use the distance between said hinged portion and said rotary member, said concave arrangement further comprising a second stage downstream of and spaced apart from said first stage and adapted to receive material processed in use in said first stage  
20       and said arrangement further including a bridging means for bridging a gap between said first and second stages, said bridging means being pivotally moveable jointly with said hinged portion such that said bridging means substantially closes said gap in and between each of at least said first and second positions of said hinged portion.

- 18) A method of processing gathered material using a concave arrangement comprising a first stage having a concave associated with a rotary member, the method including varying with a rearwardly disposed hinged portion of said concave a break-over angle presented to material between said first stage and a second stage and varying said break-over angle by moving said hinged portion jointly with a hinged bridging means in such a manner that said hinged bridging means substantially closes a gap between said first and second stages in a plurality of positions of said hinged concave portion.